

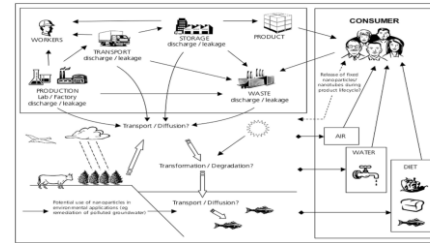
› LICARA NANOSCAN

A tool for the self-assessment of benefits and risks of nanoproducts

Wouter Fransman

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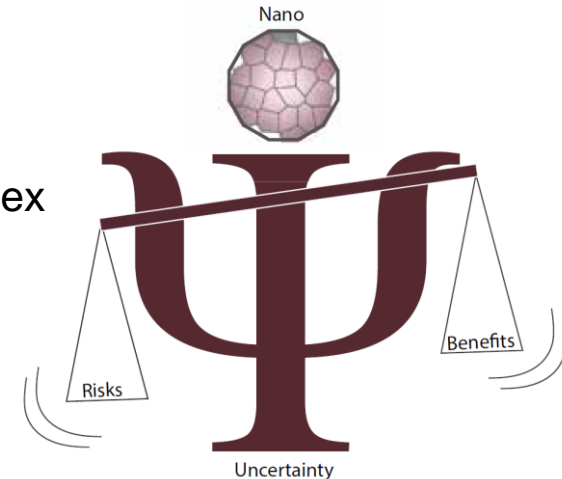
LICARA PROJECT



- › **Life Cycle Approach** and human **Risk Assessment**, product stewardship and stakeholder risk/benefit communication of nanomaterials
- › **Aims** to develop an approach for SMEs to assess over the life cycle
 - › the human and environment risks
 - › and the economic, environmental and social opportunities.
- › **Deliverables**
 - › Guidelines
 - › Case studies with in-depth assessments
 - › Framework and first version of a tool LICARA nanoSCAN

PRESENT SITUATION ON NANO TECHNOLOGY DEVELOPMENT WITHIN SME'S

- › Nano products provide benefits and business opportunities
- › However, the possibility of human and environmental risks may spoil the party
- › It is (too) difficult and costly to assess these risks
 - › Risk Assessment and Life Cycle Assessment are complex and costly to perform
 - › data are scarce and if available highly uncertain.
 - › it is difficult to “repair” data gaps

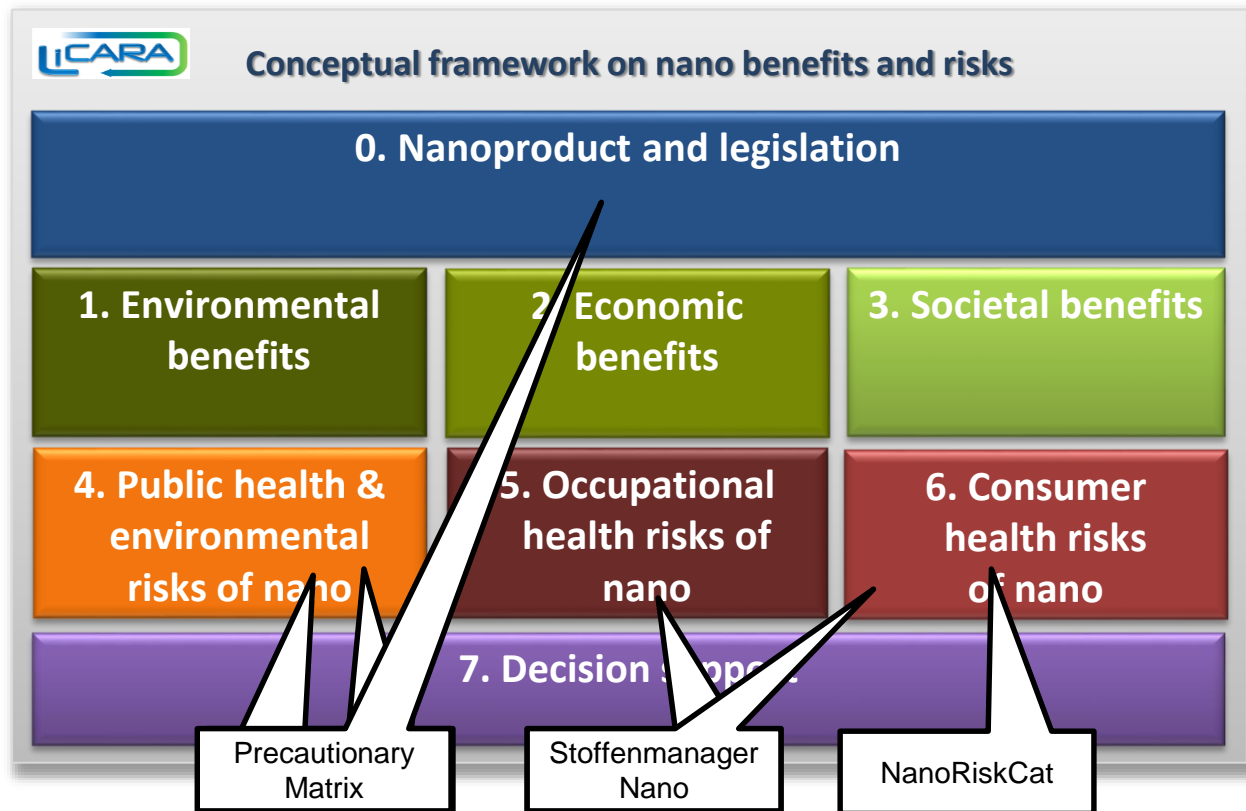


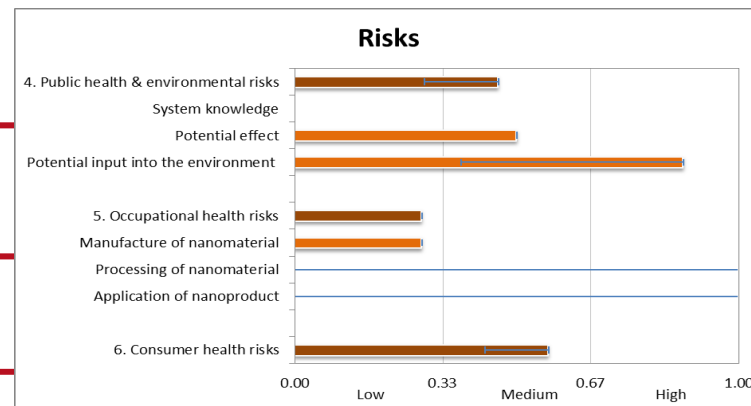
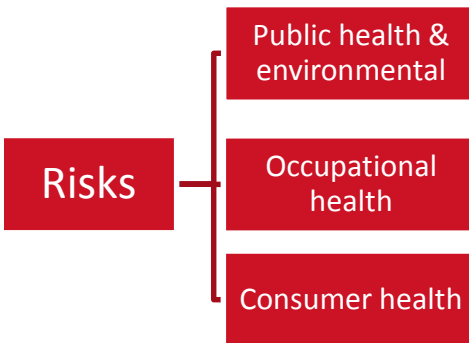
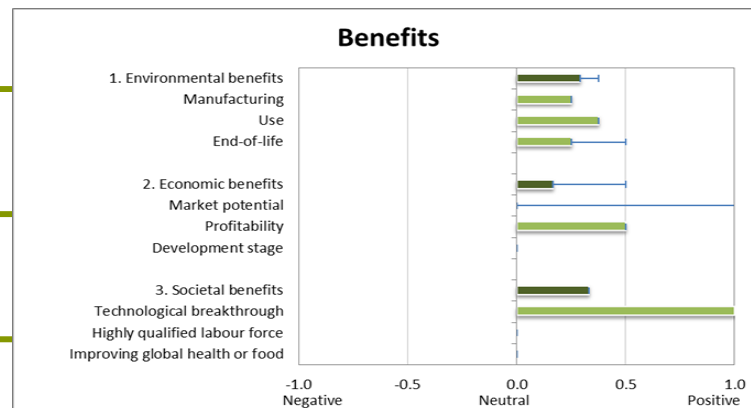
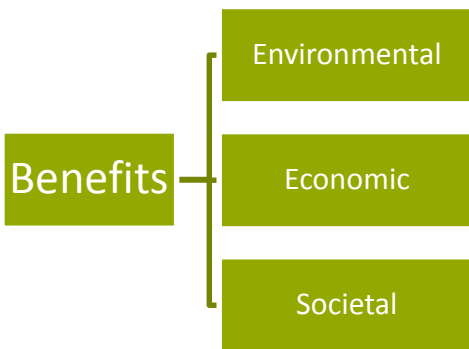
NEED TO SUPPORT SME'S ON DECISION MAKING IN UNCERTAINTY ON NANO PRODUCT DEVELOPMENT

- › Including both benefits and risks
- › Translating present available scientific knowledge into understandable information
- › Tapping on specific know-how of SMEs
- › To sketch the pros and cons of a nanoproduct in relation to a conventional product and over the full life cycle

NEED TO SUPPORT SME'S ON DECISION MAKING IN UNCERTAINTY ON NANO PRODUCT DEVELOPMENT

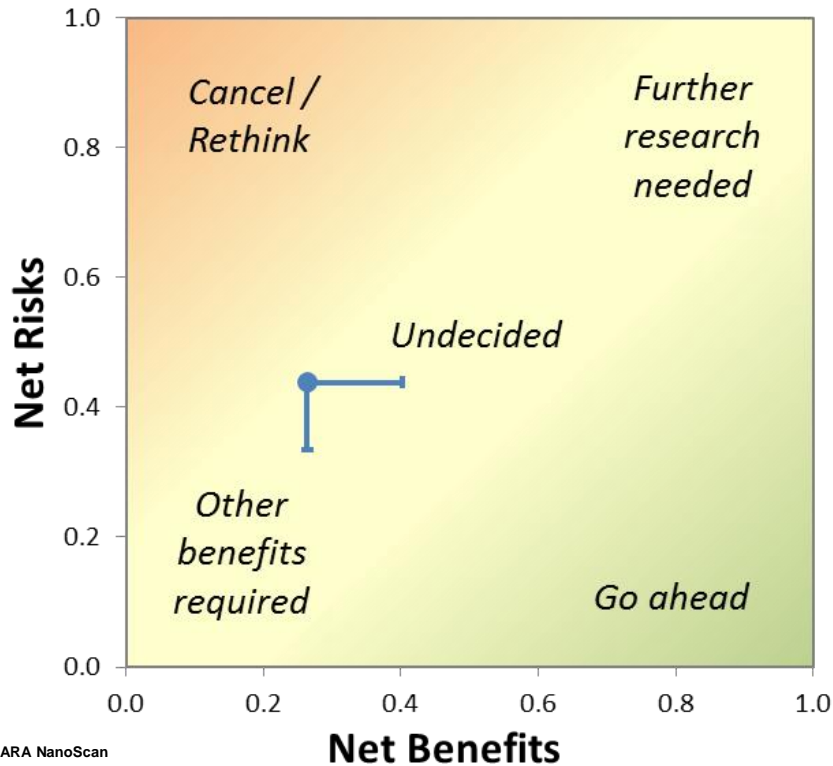
- › Qualitative / semi-quantitative giving the fact that little quantitative data is available with high uncertainties
- › Using existing tools
- › Doing it yourself in a modular approach
- › Next to guidelines a simple first version of a tool LICARA nanoSCAN





WEIGHED RESULTS

Example: scratch and corrosion resistant nano silica coating



APPLICATIONS OF LICARA NANOSCAN

Competition (opportunity, performance)

- Compare products against new developments/product substitution by competitors
- Examine new technologies from competitors and whether or not to invest in such technology

Suppliers (resource analysis)

- Check which nanoproducts perform best and have the lowest occupational health risks



Market / client (benefit, risk)

- Identify customers' benefits of using nanoproducts
- Support customers in safe and responsible nanoproduct handling

Reflection (internal risk analysis)

- Verify whether risks are at the very least counter-balanced by benefits

SCREENSHOTS OF LICARA NANOSCAN

WELCOME

Introduction

What is the LICARA nanoSCAN?

The LICARA nanoSCAN assists Biotech in choosing a better, competing product, faster and/or cheaper to bring to market. It is a decision support tool for the selection of a product to be developed. It is a decision support tool for the selection of a product to be developed. It is a decision support tool for the selection of a product to be developed.

How does the LICARA nanoSCAN work?

LICARA nanoSCAN is designed to assist you in choosing a better, competing product, faster and/or cheaper to bring to market. It is a decision support tool for the selection of a product to be developed. It is a decision support tool for the selection of a product to be developed. It is a decision support tool for the selection of a product to be developed.

Decision Support

Save your nanoSCAN

Benefits

Risk

Evaluation of the benefits and risks using user weighting

IMPLEMENTATION IN SUN DECISION SUPPORT SYSTEM

The screenshots illustrate the implementation of the SUNDS v1.3.1 system in the SUN Decision Support System. The interface includes several key components:

- Consumer Health Risks:** A section for assessing risks to consumers, including questions about the origin of the nanoscale state and the accuracy of material estimation.
- Societal Benefits:** A section for evaluating societal benefits, with questions about the annual quantity of waste and the physical surroundings of the product.
- Occupational Health Risks:** A section for assessing risks to workers, featuring a hazard and exposure score selection tool and a 4x5 grid (A-E) for hazard and exposure during processing and application.
- Summary Dashboard:** A sidebar on the left showing a list of assessment categories: Environmental Benefits, Economic Benefits, Market potential, Profitability, and Development horizon. A main area displays a bar chart and a table of results.
- Guidance:** A detailed text box explaining the normalization of risk scores from 0 to 1, where 0 is the lowest possible risk and 1 is the highest possible risk.

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› We

LICARA nanoSCAN - A tool for the self-assessment of benefits and risks

(e) Toon van Harmelen ^a, Esther K. Zondervan-van den Beuken ^{b,*}, Derk H. Brouwer ^{b,f}, Eelco Kuijpers ^b,
 Wouter Fransman ^b, Harrie B. Buist ^b, Tom N. Ligthart ^a, Ingrid Hincapié ^c, Roland Hischer ^c, Igor Linkov ^{d,g},
 Bernd Nowack ^c, Jennifer Studer ^e, Lorenz Hilty ^{c,e}, Claudia Som ^c

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A nighttime photograph of a city street. On the left, a brick building with many lit windows. In the center, a modern, curved, metallic structure with a glass railing, possibly a pedestrian bridge or walkway, is illuminated. The background shows a city skyline with lights and a curved building on the right. Green light trails from a moving object are visible in the upper right. The overall scene is a mix of traditional and modern architecture.

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